

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.04.97
Test oil : ISO 4113
Combination No. : 0 402 890 300
Injection pump
Pump designation : PE12P120A520LS8524
EP type number : 0 421 820 202
Governor
Governor design. : RE30
Governor no. : 0 421 890 036

Cust. part No. : 51.11103-7575

Customer-spec. information
Customer : MAN
Motor : D 2842 LF 03
Power KW : 559.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 6.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.100
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 1.900
Del. quantity
cm3/1000 strokes : 177.0
Tolerance
cm3/1000 strokes : +/- 5.0
Check tolerance
cm3/1000S. : +/- 9.0

TEST POINT L1

Rated speed rpm	:	300
Uact V	:	1.340
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.080
Del. quantity		
cm ³ /1000 strokes	:	25.0
Tolerance		
cm ³ /1000 strokes	:	± 3.0
Spread		
Tolerance		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000S.	:	12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.04.97
Test oil : ISO 4113

Combination No. : 0 402 698 033

Injection pump
Pump designation : PE8H120/320LS15
EP type number : 0 412 628 004

Governor
Governor design. : RE36
Governor no. : 0 421 890 369

Cust. part No. : 0250745602

Customer-spec. information
Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm3/1000 strokes : 345.0
Tolerance
cm3/1000 strokes : +/- 2.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 335.0

Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm3/1000 strokes : 354.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

Rated speed rpm : 630
Uact V : 2.000
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm3/1000 strokes : 205.0
Tolerance
cm3/1000 strokes : \pm 2.5
Check tolerance
cm3/1000S. : \pm 5.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 113.0

Tolerance
cm3/1000 strokes : \pm 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113
Combination No. : 0 402 899 301
Injection pump
Pump designation : PE10P120A520LS8523
EP type number : 0 412 829 202
Governor
Governor design. : RE30
Governor no. : 0 421 890 040

Cust. part No. : 51.11103-7531

Customer-spec. information
Customer : MAN
Motor : D 2840 LE 403
Power KW : 772.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1A- 8-7A- 6- 3A- 5
: - 2A- 10- 9A- 4

Phasing : 0-27-72-99-144-171
: -216-243-288-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 10

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +- 0,115
CRT mm : 19,00
Tolerance mm : +- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.360
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.220
Del. quantity
cm3/1000 strokes : 180.0
Tolerance
cm3/1000 strokes : +- 5.0
Check tolerance
cm3/1000S. : +- 9.0
Speed

Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 1.940
Del. quantity
cm3/1000 strokes : 0.1
Tolerance
cm3/1000 strokes : \pm 0.1
Check tolerance
cm3/1000S. : \pm 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 2.160
Del. quantity
cm3/1000 strokes : 165.0
Tolerance
cm3/1000 strokes : \pm 15.0
Check tolerance
cm3/1000S. : \pm 15.0

TEST POINT L1

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300
Uact V : 1.600
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : \pm 3.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97
Test oil : ISO 4113

Combination No. : 0 402 796 816

Injection pump
Pump designation : PES6P120A720/3LS7396
EP type number : 0 412 726 948

Governor
Governor design. : RE30
Governor no. : 0 421 890 035

Cust. part No. : 51.11103-7485

Customer-spec. information
Customer : MAN
Motor : D 2866 LF 10
Power KW : 309.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.100
Del. quantity
cm3/1000 strokes : 285.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.120
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.470
Del. quantity
cm3/1000 strokes : 73.0
Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 9.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm3/1000 strokes : 118.0
Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 9.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.05.97

Test oil : ISO 4113

Combination No. : 0 402 796 825

Injection pump

Pump designation : PES6P12QA720/3LS7435

EP type number : 0 412 726 969

Governor

Governor design. : RE30

Governor no. : 0 421 890 042

Cust. part No. : 51.11103-7503

Customer-spec. information

Customer : MAN

Motor : D 2866 LUE 602

Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holder assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.85

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00

Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.100
Del. quantity
cm3/1000 strokes : 285.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.120
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.470
Del. quantity
cm3/1000 strokes : 73.0
Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 9.0
Spreed
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm3/1000 strokes : 118.0
Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 9.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.02.96
Test oil : ISO 4113
Combination No. : 0 402 196 707
Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781
Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 62645

Customer-spec. information
Customer : DEERE
Motor : 6081HF001
Power KW : 203.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 077
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Prestroke mm : 3.60
Tolerance mm : ± 0.03
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference * CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 3.0
Spreed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 141.5

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.03.96
Test oil : ISO 4113
Combination No. : 0 402 196 709
Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781
Governor
Governor design. : RE30
Governor no. :

Cust. part No. : RE 67771

Customer-spec. information
Customer : DEERE
Motor : 6081HRW06
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 077
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25

Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 3.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880

Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.05.97
Test oil : ISO 4113

Combination No. : 0 402 796 206

Injection pump
Pump designation : PES6H120/720RS1007
: -1
EP type number : 0 412 726 209

Governor
Governor design. : RE33
Governor no. : 0 421 890 366

Cust. part No. : 309 4348

Customer-spec. information
Customer : CUMMINS
Motor : QST30
Power KW : 783.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Prestroke mm : 9.99
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.15
Check
tolerance °NW : ± 0.30

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.315
Del. quantity
cm³/1000 strokes : 358.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.350
Del. quantity
cm³/1000 strokes : 386.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.400
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : +- 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Del. quantity
cm³/1000 strokes : 245.0
Check tolerance
cm³/1000S. : +- 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.05.97
Test oil : ISO 4113
Combination No. : 0 402 796 207
Injection pump
Pump designation : PES6H120/320RS1008
: -1
EP type number : 0 412 726 208
Governor
Governor design. : RE33
Governor no. : 0 421 890 367

Cust. part No. : 309 4347

Customer-spec. information
Customer : CUMMINS
Motor : QST30
Power KW : 783.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Prestroke mm : 9.99
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.15
Check
tolerance °NW : ± 0.30

Start of delivery blocking

°NW before FB : 25.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29
Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.315
Del. quantity
cm³/1000 strokes : 358.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.350
Del. quantity
cm³/1000 strokes : 386.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.400
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Del. quantity
cm³/1000 strokes : 245.0
Check tolerance
cm³/1000S. : +- 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.04.97
Test oil : ISO 4113

Combination No. : 0 402 698 033F4

Injection pump
Pump designation : PE8H120/320LS15
EP type number : 0 412 628 003

Governor
Governor design. : RE36 (FD 66322 - FD 76319)
Governor no. : 0 421 890 369

Cust. part No. : 0250745602

Customer-spec. information
Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 342.0
Tolerance
cm³/1000 strokes : +/- 2.0
Check tolerance
cm³/1000S. : +/- 6.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900

Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 329.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 349.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Rated speed rpm : 630
Uact V : 2.000
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm³/1000 strokes : 203.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00

Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.06.97
Test oil : ISO 4113

Combination No. : 0 401 496 002

Injection pump
Pump designation : PE6R130/720RS1503
EP type number : 0 411 436 001

Governor
Governor design. : RE31
Governor no. : 0 421 890 201

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8210.42.5000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.40

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

B04

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 950
Uact V : 3.218
Del. quantity
cm³/1000 strokes : 279.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000s. : 16.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.218
Del. quantity
cm³/1000 strokes : 293.0

Tolerance
cm3/1000 strokes : +- 6.0
Check tolerance
cm3/1000S. : +- 10.0

Rated speed rpm : 550
Uact V : 2.300
Del. quantity
cm3/1000 strokes : 189.0
Tolerance
cm3/1000 strokes : +- 4.5
Check tolerance
cm3/1000S. : +- 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.260
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.120
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : +- 3.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : +- 15.0
Check tolerance
cm3/1000S. : +- 20.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.06.97
Test oil : ISO 4113

Combination No. : 0 402 796 041

Injection pump
Pump designation : PES6H110/320RS19
EP type number : 0 412 716 006

Governor
Governor design. : RE36
Governor no. : 0 421 890 374

Cust. part No. : 8192870 P03 v.04/97

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : D7C
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
 : - 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point

(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00

Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660
Uact V : 3.000
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm3/1000 strokes : 359.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 5.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : +/- 2.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.06.97
Test oil : ISO 4113

Combination No. : 0 402 696 032

Injection pump
Pump designation : PE6H120/320LS16
EP type number : 0 412 626 005

Governor
Governor design. : RE36
Governor no. : 0 421 890 369

Cust. part No. : 0250746502

Customer-spec. information
Customer : MB-NFZ
Motor : OM 441 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 375.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 339.0
Tolerance
cm3/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Rated speed rpm : 550
Uact V : 2.800
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm³/1000 strokes : 367.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : \pm 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.06.97
Test oil : ISO 4113

Combination No. : 0 402 696 033

Injection pump
Pump designation : PE6H120/320LS14
EP type number : 0 412 626 004

Governor
Governor design. : RE36
Governor no. : 0 421 890 369

Cust. part No. : 0250745502

Customer-spec. information
Customer : MB-NFZ
Motor : OM 441 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 375.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 339.0
Tolerance
cm3/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Rated speed rpm : 550
Uact V : 2.800
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm³/1000 strokes : 367.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : +- 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note: remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.06.97
Test oil : ISO 4113

Combination No. : 0 402 698 032

Injection pump
Pump designation : PE8H120/320LS3-1
EP type number : 0 412 628 005

Governor
Governor design. : RE36
Governor no. : 0 421 890 369

Cust. part No. : 0250746502

Customer-spec. information
Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 341.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 333.0
Tolerance
cm³/1000 strokes : +/- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm3/1000 strokes : 351.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 strokes : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 108.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.06.97

Test oil : ISO 4113

Combination No. : 0 402 796 033

Injection pump

Pump designation : PES6H120/720LS18

EP type number : 0 412 726 010

Governor

Governer design. : RE36

Governer no. : 0 421 890 370

Cust. part No. : 0250745702

Customer-spec. information

Customer : MB-NFZ

Motor : OM 447 hla

TEST BENCH REQUIREMENTS

Inlet line : 3.2 EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 7.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at

n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 800
Uact V : 2.650
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm3/1000 strokes : 302.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100
Uact V : 2.750
Prestroke solenoid
Stroke mm : 6.00
Del. quantity
cm3/1000 strokes : 302.0
Tolerance
cm3/1000 strokes : +/- 5.0

Check tolerance
cm3/1000S. : \pm 8.0

Rated speed rpm : 550
Uact V : 2.350
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm3/1000 strokes : 272.0
Tolerance
cm3/1000 strokes : \pm 8.0
Check tolerance
cm3/1000S. : \pm 11.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.440
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm3/1000 strokes : 25.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm3/1000 strokes : 104.0
Tolerance
cm3/1000 strokes : \pm 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.06.97
Test oil : ISO 4113
Combination No. : 0 402 796 813
Injection pump
Pump designation : PES6P120A720RS7356
EP type number : 0 412 726 919
Governor
Governor design. : RE30
Governor no. : 0 421 890 017

Cust. part No. : RE 61658

Customer-spec. information
Customer : DEERE
Motor : 6081 HF001
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 077
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

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x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Start of delivery blocking
°NW after s.o.d. : 9.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm3/1000 strokes : 213.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 3.120
Del. quantity
cm3/1000 strokes : 237.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed

Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : ± 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 strokes : ± 20.0
Check tolerance
cm3/1000S. : ± 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.97
Test oil : ISO 4113

Combination No. : 0 402 890 301

Injection pump
Pump designation : PE12P120A520LS8525
EP type number : 0 412 820 203

Governor
Governor design. : RE30
Governor no. : 0 421 890 040

Cust. part No. : 51.11103-7552

Customer-spec. information

Customer : MAN
Motor : D 2842 LE 404
Power KW : 956.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1A- 5-9A- 8- 3A- 4
: -11A- 10- 2A- 6
: - 7A

Phasing : 0-15-60-75-120-135
: -180-195-240-255
: -300-315
Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.360
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.220
Del. quantity
cm³/1000 strokes : 180.0

Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 9.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 1.940
Del. quantity
cm3/1000 strokes : 0.1
Tolerance
cm3/1000 strokes : \pm 0.1
Check tolerance
cm3/1000S. : \pm 0.1

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 2.160
Del. quantity
cm3/1000 strokes : 165.0
Tolerance
cm3/1000 strokes : \pm 15.0
Check tolerance
cm3/1000S. : \pm 15.0

TEST POINT L1

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300
Uact V : 1.600
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97

Test oil : ISO 4113

Combination No. : 0 402 796 814

Injection pump

Pump designation : PES6P120A720RS7367

EP type number : 0 412 726 932

Governor

Governer design. : RE30

Governer no. : 0 421 890 026

Cust. part No. :

Customer-spec. information

Customer : IVECO-FRANCE

Motor : 8460.41.6000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Check

tolerance °NW : ± 0.40

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 2.900
Del. quantity
cm3/1000 strokes : 296.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.690
Del. quantity
cm3/1000 strokes : 238.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.600
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.07.96
Test oil : ISO 4113

Combination No. : 0 402 896 015

Injection pump
Pump designation : PE6P120A320RS8033
EP type number : 0 412 826 031

Governor
Governor design. : RE30
Governor no. : 0 421 890 027

Cust. part No. : 425758 P04 v. 09/95

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : DH 10 A
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

C02

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500

Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 295.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 252.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm3/1000 strokes : 178.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.08.95
Test oil : ISO 4113

Combination No. : 0 402 896 017

Injection pump
Pump designation : PE6P120A320RS8035
EP type number : 0 412 826 033

Governor
Governor design. : RE30
Governor no. : 0 421 890 030

Cust. part No. : 3825439-SK0EV.
: -AUDIT

Customer-spec. information
Customer : PENTA
Motor : TAMD 72 P-A
Power KW : 316.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

C05

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point

(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00

Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 305.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1300
Uact V : 2.600
Del. quantity
cm3/1000 strokes : 215.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Speed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 1000
Uact V : 2.400

Del. quantity
cm³/1000 strokes : 208.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000s. : 14.0

Rated speed rpm : 800
Uact V : 2.200
Del. quantity
cm³/1000 strokes : 191.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000s. : 14.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.600
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.97
Test oil : ISO 4113

Combination No. : 0 402 196 709

Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. :

Cust. part No. : RE 67771

Customer-spec. information
Customer : DEERE
Motor : 6081HRW06
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25

Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 3.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880

Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.97
Test oil : ISO 4113

Combination No. : 0 402 196 710

Injection pump
Pump designation : PES6P120A72ORS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. :

Cust. part No. : RE 67448

Customer-spec. information
Customer : DEERE
Motor : 6081AT002
Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25

Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 3.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880

Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.97
Test oil : ISO 4113

Combination No. : 0 402 196 711

Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 68148

Customer-spec. information
Customer : DEERE
Motor : 6081HDW02
Power KW : 163.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 7.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25

Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880

Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.97

Test oil : ISO 4113

Combination No. : 0 402 196 712

Injection pump

Pump designation : PES6P110A32ORS3386

EP type number : 0 412 016 757

Governor

Governer design. : RE30

Governer no. : 0 421 890 044

Cust. part No. : RE 69563

Customer-spec. information

Customer : DEERE

Motor : 6068HDW55

Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 6.50

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 15.00

Tolerance mm : ± 0.50

Difference ° CS : 2.00

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25

Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1000
Uact V : 3.180
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 600
Uact V : 3.180

Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 400
Uact V : 1.590
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 400
Uact V : 1.590
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.97
Test oil : ISO 4113

Combination No. : 0 402 796 820

Injection pump
Pump designation : PES6P120A720LS7410
EP type number : 0 412 726 957

Governor
Governor design. : RE30
Governor no. : 0 421 890 038

Cust. part No. : 0260744902

Customer-spec. information
Customer : MTU
Motor : 6-R-183
Power KW : 441.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500

Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.500
Del. quantity
cm3/1000 strokes : 362.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.500
Del. quantity
cm3/1000 strokes : 423.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 350
Uact V : 1.340
Tolerance Volt : +/- 0.060

Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.03.97

Test oil : ISO 4113

Combination No. : 0 402 996 002

Injection pump

Pump designation : PE6P120A720LS8032

EP type number : 0 412 926 023

Governor

Governer design. : RE30

Governer no. : 0 421 890 025

Cust. part No. : 1364497

Customer-spec. information

Customer : SCANIA

Motor : DSC1201

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 104

Opening pressure
bar

: 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 180.00

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)

$U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)

$U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.400
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 365.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 11.0
Speed
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.400
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 322.0

Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 10.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.400
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.97
Test oil : ISO 4113

Combination No. : 0 402 196 706

Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 62643

Customer-spec. information
Customer : DEERE
Motor : 6081AF001
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25

Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880

Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.97
Test oil : ISO 4113

Combination No. : 0 402 196 707

Injection pump
Pump designation : PES6P120A72ORS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 62645

Customer-spec. information
Customer : DEERE
Motor : 6081HF001
Power KW : 203.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Prestroke mm : 3.60
Tolerance mm : ± 0.03
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 3.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 141.5

Tolerance
 cm3/1000 strokes : \pm 3.0
 Check tolerance
 cm3/1000S. : \pm 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

Rated speed rpm : 425
 Uact V : 1.610
 Del. quantity
 cm3/1000 strokes : 22.0
 Tolerance
 cm3/1000 strokes : \pm 3.0
 Check tolerance
 cm3/1000S. : \pm 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 6.0
 Check tolerance
 cm3/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
 Uact V : 1.610
 Tolerance Volt : \pm 0.060
 Check tolerance
 Volt : \pm 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Uact V : 4.600
 Del. quantity
 cm3/1000 strokes : 105.0
 Tolerance
 cm3/1000 strokes : \pm 10.0
 Check tolerance
 cm3/1000S. : \pm 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.97
Test oil : ISO 4113
Combination No. : 0 402 196 708
Injection pump
Pump designation : PES6P120A720RS3362
EP type number : 0 412 026 787
Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 64860

Customer-spec. information
Customer : DEERE
Motor : 6076ADW31
Power KW : 140.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 077
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

D04

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 7.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 3.25

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +- 0,065
CRT mm : 1,00

Starting position

(M pump)

Uact V : 4,500
Tolerance Volt : +- 0,115
CRT mm : 19,00
Tolerance mm : +- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 139.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.580
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.580
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.07.97
Test oil : ISO 4113
Combination No. : 0 402 796 819
Injection pump
Pump designation : PES6P120A720RS7407
EP type number : 0 412 726 955
Governor
Governor design. : RE30
Governor no. : 0 421 890 037

Cust. part No. : RE 65679

Customer-spec. information
Customer : DEERE
Motor : 6101HRW10
Power KW : 266.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 077
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

D07

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 9.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1
Beginning of delivery difference
and maximum rack
travel : 15.00

Difference ° CS : 3.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm³/1000 strokes : 213.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700

Uact V : 3.120
Del. quantity
cm3/1000 strokes : 237.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 strokes : \pm 20.0
Check tolerance
cm3/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.07.97
Test oil : ISO 4113

Combination No. : 0 402 196 705

Injection pump
Pump designation : PES6P120A720RS3347
EP type number : 0 412 026 777

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 63514

Customer-spec. information
Customer : DEERE
Motor : 6076 HRW35
Power KW : 181.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 10.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.710
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.710
Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.400
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm3/1000 strokes : 100.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.07.97
Test oil : ISO 4113

Combination No. : 0 402 796 821

Injection pump
Pump designation : PES6P120A720RS7407
EP type number : 0 412 726 955

Governor
Governor design. : RE30
Governor no. : 0 421 890 017

Cust. part No. : RE 67492

Customer-spec. information
Customer : DEERE
Motor : 6101HZ013
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 15.00

Difference ° CS : 3.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm³/1000 strokes : 213.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700

Uact V : 3.120
Del. quantity
cm3/1000 strokes : 237.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 strokes : \pm 20.0
Check tolerance
cm3/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.08.97
Test oil : ISO 4113

Combination No. : 0 402 796 206

Injection pump
Pump designation : PES6H120/720RS1007
: -1
EP type number : 0 412 726 209

Governor
Governor design. : RE33
Governor no. : 0 421 890 366

Cust. part No. : 309 4348

Customer-spec. information
Customer : CUMMINS
Motor : QST30
Power KW : 783.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 7.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Prestroke mm : 9.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in

stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)
Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.315
Del. quantity
cm³/1000 strokes : 358.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.350
Del. quantity
cm3/1000 strokes : 386.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.400
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 38.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Del. quantity
cm3/1000 strokes : 255.0
Check tolerance
cm3/1000S. : \pm 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.08.97
Test oil : ISO 4113

Combination No. : 0 402 796 207

Injection pump
Pump designation : PES6H120/320RS1008
: -1
EP type number : 0 412 726 208

Governor
Governor design. : RE33
Governor no. : 0 421 890 367

Cust. part No. : 309 4347

Customer-spec. information
Customer : CUMMINS
Motor : QST30
Power KW : 783.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 7.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Prestroke mm : 9.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 25.00

Tolerance : \pm 0.50
Check
tolerance °NW : \pm 0.75
Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 13.00
Tolerance mm : \pm 0.05
Check
tolerance mm : \pm 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 6.15
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 12.50
Tolerance mm : \pm 0.05
Check
tolerance mm : \pm 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 5.50
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.35

Stop position
(M pump)

$U_{act} \text{ V}$: 0,720
Tolerance Volt : \pm 0,065
CRT mm : 1,00

Starting position
(M pump)

$U_{act} \text{ V}$: 4,500
Tolerance Volt : \pm 0,115
CRT mm : 19,00
Tolerance mm : \pm 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : \pm 0.6
Check
tolerance V : \pm 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
 $U_{act} \text{ V}$: 3.315
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 358.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: \pm 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: \pm 4.0
Speed
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0

Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.350
Del. quantity
cm³/1000 strokes : 386.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.400
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Del. quantity
cm³/1000 strokes : 255.0
Check tolerance
cm³/1000S. : ± 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.07.97

Test oil : ISO 4113

Combination No. : 0 402 796 812

Injection pump

Pump designation : PES6P120A72ORS7315

EP type number : 0 412 726 902

Governor

Governer design. : RE30

Governer no. : 0 421 890 017

Cust. part No. : RE 57373

Customer-spec. information

Customer : DEERE

Motor : 6081

Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
 Uact V : 2.940
 Del. quantity
 cm3/1000 strokes : 237.0
 Tolerance
 cm3/1000 strokes : +/- 3.0
 Check tolerance
 cm3/1000S. : +/- 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
 Uact V : 1.590
 Tolerance Volt : +/- 0.060
 Check tolerance
 Volt : +/- 0.060
 Del. quantity
 cm3/1000 strokes : 26.0
 Tolerance
 cm3/1000 strokes : +/- 3.0
 Spreed
 Tolerance
 cm3/1000 strokes : 6.0
 Check tolerance
 cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.600
Del. quantity		
cm ³ /1000 strokes	:	115.0
Tolerance		
cm ³ /1000 strokes	: ±	20.0
Check tolerance		
cm ³ /1000S.	: ±	25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.07.97
Test oil : ISO 4113

Combination No. : 0 402 796 818

Injection pump
Pump designation : PES6P120A720RS7356
EP type number : 0 412 726 919

Governor
Governor design. : RE30
Governor no. : 0 421 890 017

Cust. part No. : RE 66463

Customer-spec. information
Customer : DEERE
Motor : 6081 AF001
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende
and maximum rack
travel : 15.00

Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm³/1000 strokes : 213.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700

Uact V : 3.120
Del. quantity
cm3/1000 strokes : 237.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 strokes : \pm 20.0
Check tolerance
cm3/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.09.97
Test oil : ISO 4113

Combination No. : 0 402 796 034

Injection pump
Pump designation : PES6H120/32ORS8
EP type number : 0 412 726 005

Governor
Governor design. : RE36
Governor no. : 0 421 890 355

Cust. part No. : 51.11103-7333

Customer-spec. information

Customer : MAN
Motor : D 0826 LUH 12
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

E01

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 800
Uact V : 2.510
Prestroke solenoid
Stroke mm : 13.20
Del. quantity
cm3/1000 strokes : 222.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1200
Uact V : 2.540
Prestroke solenoid
Stroke mm : 10.30
Del. quantity
cm3/1000 strokes : 209.0

Tolerance
cm3/1000 strokes : +- 5.0
Check tolerance
cm3/1000S. : +- 9.0

Rated speed rpm : 800
Uact V : 1.400
Prestroke solenoid
Stroke mm : 12.00
Del. quantity
cm3/1000 strokes : 58.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 8.0
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 7.0

Rated speed rpm : 500
Uact V : 1.930
Prestroke solenoid
Stroke mm : 10.40
Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.440
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 8.80
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 strokes : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.100
Prestroke solenoid
Stroke mm : 7.20

Del. quantity
cm3/1000 strokes : 104.0
Tolerance
cm3/1000 strokes : +- 6.0
Check tolerance
cm3/1000S. : +- 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.10.97
Test oil : ISO 4113

Combination No. : 0 402 796 041

Injection pump
Pump designation : PES6H110/320RS19
EP type number : 0 412 716 006

Governor
Governor design. : RE36
Governor no. : 0 421 890 374

Cust. part No. : 8192870 P04 v.07/97

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : D7C
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

E03

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
 : - 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660
Uact V : 3.000
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm³/1000 strokes : 359.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : +/- 2.0
Speed

Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.97

Test oil : ISO 4113

Combination No. : 0 402 796 041

Injection pump

Pump designation : PES6H110/320RS19

EP type number : 0 412 716 006

Governor

Governer design. : RE36

Governer no. : 0 421 890 374

Cust. part No. : 8192870 P04 v.07/97

Customer-spec. information

Customer : VOLVO-TRUCK

Motor : D7C

Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 8.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at

n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point

(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660
 Uact V : 3.000
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity
 cm3/1000 strokes : 359.0
 Tolerance
 cm3/1000 strokes : +/- 1.0
 Check tolerance
 cm3/1000S. : +/- 5.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 11.0
 FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.570
 Tolerance Volt : +/- 0.060
 Check tolerance
 Volt : +/- 0.060
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity
 cm3/1000 strokes : 20.0
 Tolerance
 cm3/1000 strokes : +/- 2.0
 Spreed

Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.11.97
Test oil : ISO 4113

Combination No. : 0 402 796 815

Injection pump
Pump designation : PES6P120A720/3LS7388
EP type number : 0 412 726 946

Governor
Governor design. : RE30
Governor no. : 0 421 890 035

Cust. part No. : 51.11103-7458

Customer-spec. information
Customer : MAN
Motor : D 2866 LOH 25
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.100
Del. quantity
cm3/1000 strokes : 271.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.120
Del. quantity
cm3/1000 strokes : 252.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.470
Del. quantity
cm3/1000 strokes : 83.0
Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 9.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm3/1000 strokes : 176.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.97

Test oil : ISO 4113

Combination No. : 0 402 796 042

Injection pump

Pump designation : PES6H120/320RS26

EP type number : 0 412 726 014

Governor

Governer design. : RE36

Governer no. : 0 421 890 374

Cust. part No. : 8192940 P02 v.10/97

Customer-spec. information

Customer : VOLVO-TRUCK

Motor : D7C EURO II

Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 8.00

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
: - 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30

Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660
 Uact V : 2.900
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity
 cm3/1000 strokes : 308.0
 Tolerance
 cm3/1000 strokes : +/- 1.0
 Check tolerance
 cm3/1000S. : +/- 5.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.670
 Tolerance Volt : +/- 0.060
 Check tolerance
 Volt : +/- 0.060
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity
 cm3/1000 strokes : 16.0
 Tolerance
 cm3/1000 strokes : +/- 2.0
 Spreed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 196 703

Injection pump
Pump designation : PES6P120A720RS3184
EP type number : 0 412 026 727

Governor
Governor design. : RE24
Governor no. : 0 421 890 018

Cust. part No. : RE 57372

Customer-spec. information
Customer : DEERE
Motor : 6076 HRW35
Power KW : 181.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 10.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.710
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.710
Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.400
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 strokes : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm3/1000 strokes : 100.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.11.97
Test oil : ISO 4113

Combination No. : 0 402 795 201

Injection pump
Pump designation : PES5H120/720/3LS1002
EP type number : 0 412 725 201

Governor
Governor design. : RE33
Governor no. : 0 421 890 354

Cust. part No. : 51.11103-7254

Customer-spec. information
Customer : MAN
Motor : D2865LF09

TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 309.0
Check tolerance
cm3/1000S. : +/- 6.0

Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm3/1000 strokes : 304.0
Check tolerance
cm3/1000S. : \pm 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm3/1000 strokes : 168.0
Check tolerance
cm3/1000S. : \pm 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 65.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : \pm 3.0
Speed

Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 173.0
Check tolerance
cm3/1000S. : \pm 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.11.97

Test oil : ISO 4113

Combination No. : 0 402 796 201

Injection pump

Pump designation : PES6H120/720/3LS1001

EP type number : 0 412 726 201

Governor

Governer design. : RE33

Governer no. : 0 421 890 354

Cust. part No. : 51.11103-7255

Customer-spec. information

Customer : MAN

Motor : D2866LF14

TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 10.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 309.0
Tolerance
cm3/1000 strokes : +/- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm3/1000 strokes : 304.0
Check tolerance
cm3/1000S. : +- 6.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm3/1000 strokes : 168.0
Check tolerance
cm3/1000S. : +- 6.0

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 65.0
Check tolerance
cm3/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : +- 3.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00

Del. quantity
cm3/1000 strokes : 173.0
Check tolerance
cm3/1000S. : +- 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97

Test oil : ISO 4113

Combination No. : 0 402 795 202

Injection pump
Pump designation : PES5H120/720/3LS1002
: -1

EP type number : 0 412 725 202

Governor

Governer design. : RE33

Governer no. : 0 421 890 362

Cust. part No. : 51.11103-7408

Customer-spec. information

Customer : MAN

Motor : D 2865 LUH 07

Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 312.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm3/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm3/1000 strokes : 173.0
Tolerance
cm3/1000 strokes : + 4.0
Check tolerance
cm3/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 32.0
Tolerance
cm3/1000 strokes : + 3.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 185.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113
Combination No. : 0 402 795 203
Injection pump
Pump designation : PES5H120/720/3LS1004
EP type number : 0 412 725 203

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.11103-7476

Customer-spec. information
Customer : MAN
Motor : D 2865 LF 09
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 326.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 306.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : +- 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : +- 4.0
Check tolerance
cm³/1000S. : +- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : +- 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113
Combination No. : 0 402 795 204
Injection pump
Pump designation : PES5H120/720/3LS1004
: -1
EP type number : 0 412 725 204
Governor
Governor design. : RE33
Governor no. : 0 421 890 364
Cust. part No. : 51.11103-7538

Customer-spec. information
Customer : MAN
Motor : D 2865 LF 09
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 082
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +- 0,115
CRT mm : 19,00
Tolerance mm : +- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 326.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 306.0
Tolerance
cm3/1000 strokes : +- 4.0

Check tolerance
cm3/1000S. : +- 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm3/1000 strokes : 167.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 25.0
Tolerance
cm3/1000 strokes : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 174.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97

Test oil : ISO 4113

Combination No. : 0 402 795 205

Injection pump

Pump designation : PES5H120/720/3LS1002

: -2

EP type number : 0 412 725 205

Governor

Governer design. : RE33

Governer no. : 0 421 890 362

Cust. part No. : 51.11103-7540

Customer-spec. information

Customer : MAN

Motor : D 2865 LUH 07

Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holder assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 10.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 312.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : +- 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : +- 4.0
Check tolerance
cm³/1000S. : +- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97

Test oil : ISO 4113

Combination No. : 0 402 796 042

Injection pump

Pump designation : PES6H120/320RS26

EP type number : 0 412 726 014

Governor

Governer design. : RE36

Governer no. : 0 421 890 374

Cust. part No. : 8192940 P02 v.10/97

Customer-spec. information

Customer : VOLVO-TRUCK

Motor : D7C EURO II

Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

F08

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 8.00

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
: - 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30

Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660
 Uact V : 3.000
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity
 cm3/1000 strokes : 308.0
 Tolerance
 cm3/1000 strokes : +/- 1.0
 Check tolerance
 cm3/1000S. : +/- 5.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 11.0
 FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.670
 Tolerance Volt : +/- 0.060
 Check tolerance
 Volt : +/- 0.060
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity
 cm3/1000 strokes : 16.0
 Tolerance
 cm3/1000 strokes : +/- 2.0
 Spreed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113
Combination No. : 0 402 796 202
Injection pump
Pump designation : PES6H120/720/3LS1005
EP type number : 0 412 726 202
Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.11103-7477

Customer-spec. information

Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 328.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 308.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97

Test oil : ISO 4113

Combination No. : 0 402 796 203

Injection pump

Pump designation : PES6H120/720/3LS1006

EP type number : 0 412 726 203

Governor

Governer design. : RE33

Governer no. : 0 421 890 365

Cust. part No. : 51.11103-7479

Customer-spec. information

Customer : MAN

Motor : D 2866 LUH 21

Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 10.00

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

F15

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 312.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : +- 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : +- 4.0
Check tolerance
cm³/1000S. : +- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113
Combination No. : 0 402 796 204
Injection pump
Pump designation : PES6H120/720/3LS1005
: -1
EP type number : 0 412 726 204
Governor
Governor design. : RE33
Governor no. : 0 421 890 364
Cust. part No. : 51.11103-7539

Customer-spec. information
Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 082
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 328.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 308.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : +- 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : +- 4.0
Check tolerance
cm³/1000S. : +- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113
Combination No. : 0 402 796 205
Injection pump
Pump designation : PES6H120/720/3LS1006
 : -1
EP type number : 0 412 726 205
Governor
Governor design. : RE33
Governor no. : 0 421 890 365

Cust. part No. : 51.11103-7541

Customer-spec. information
Customer : MAN
Motor : D 2866 LUH 21
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 082
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 0.50
Firing order : 6- 2- 4- 1- 5-
 : 3
Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.50
Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 312.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : \pm 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.97
Test oil : ISO 4113
Combination No. : 0 402 996 311
Injection pump
Pump designation : PES6P120A720RS8512
 : -4
EP type number : 0 412 926 214
Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P2

Customer-spec. information
Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 413 359 008
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

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x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 4.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.00
Tolerance mm : ± 0.20
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 7.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : +/- 10.0
Check tolerance
cm3/1000S. : +/- 12.0
Spreed

Tolerance
cm3/1000 strokes : 16.0
Check tolerance
cm3/1000S. : 18.0

Rated speed rpm : 450
Uact V : 1.310
Del. quantity
cm3/1000 strokes : 42.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 14.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Del. quantity
cm3/1000 strokes : 33.0
Spreed
Check tolerance
cm3/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : +- 19.0
Check tolerance
cm3/1000S. : +- 22.0
Spreed
Tolerance
cm3/1000 strokes : 40.0
Check tolerance
cm3/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.97
Test oil : ISO 4113
Combination No. : 0 402 996 312
Injection pump
Pump designation : PES6P120A720RS8512
 : -5
EP type number : 0 412 926 215
Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P1

Customer-spec. information
Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 413 359 008
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

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x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 4.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.00
Tolerance mm : ± 0.20
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +- 0,115
CRT mm : 19,00
Tolerance mm : +- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 7.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 12.0
Speed

Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

Rated speed rpm : 450
Uact V : 1.310
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 6.0
Spreed
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 19.0
Check tolerance
cm³/1000S. : \pm 22.0
Spreed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.07.97
Test oil : ISO 4113

Combination No. : 0 402 796 813

Injection pump
Pump designation : PES6P120A720RS7356
EP type number : 0 412 726 919

Governor
Governor design. : RE30
Governor no. : 0 421 890 017

Cust. part No. : RE 61658

Customer-spec. information
Customer : DEERE
Motor : 6081 HF001
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm³/1000 strokes : 213.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 3.120
Del. quantity
cm³/1000 strokes : 237.0

Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 strokes : +- 20.0
Check tolerance
cm3/1000S. : +- 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97

Test oil : ISO 4113

Combination No. : 0 402 996 307

Injection pump

Pump designation : PES6P120A72ORS8512

: -2

EP type number : 0 412 926 212

Governor

Governer design. : RE30

Governer no. : 0 421 890 024

Cust. part No. : CCEP 5156 66-242

Customer-spec. information

Customer : RENAULT V.I.

Motor : 062465A42B42C42

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 413 359 009

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 12.00

Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.15

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.

mm : 20.50

and maximum rack
travel : 12.00
Difference * CS : 3.10

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet

and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm	:	625
Uact V	:	3.260
Del. quantity		
cm3/1000 strokes	:	392.0
Tolerance		
cm3/1000 strokes	:	± 10.0
Check tolerance		
cm3/1000S.	:	± 12.0
Spreed		
Tolerance		
cm3/1000 strokes	:	16.0
Check tolerance		
cm3/1000S.	:	18.0

TEST POINT L1

Rated speed rpm	:	325
Uact V	:	1.310
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.070
Del. quantity		
cm3/1000 strokes	:	33.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	14.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm3/1000 strokes	:	195.0
Tolerance		
cm3/1000 strokes	:	± 19.0
Check tolerance		
cm3/1000S.	:	± 22.0
Spreed		
Tolerance		
cm3/1000 strokes	:	40.0
Check tolerance		
cm3/1000S.	:	50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.97
Test oil : ISO 4113

Combination No. : 0 402 896 018

Injection pump
Pump designation : PE6P130A32ORS8046
EP type number : 0 412 836 011

Governor
Governor design. : RE30
Governor no. : 0 421 890 030

Cust. part No. : 3826196 P02 v.08/96

Customer-spec. information
Customer : PENTA
Motor : TAMD 122 EDC
Power KW : 450.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.900
Del. quantity
cm3/1000 strokes : 337.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1125
Uact V : 2.900
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Speed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 900
Uact V : 1.600
Del. quantity
cm3/1000 strokes : 105.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.400
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.07.97
Test oil : ISO 4113

Combination No. : 0 402 796 817

Injection pump
Pump designation : PES6P120A720RS7405
EP type number : 0 412 726 954

Governor
Governor design. : RE30
Governor no. : 0 421 890 037

Cust. part No. : RE 64862

Customer-spec. information
Customer : DEERE
Motor : 6101AF001
Power KW : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende
and maximum rack
travel : 15.00

Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm³/1000 strokes : 213.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700

Uact V	:	3.120
Del. quantity		
cm3/1000 strokes	:	237.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Check tolerance		
cm3/1000S.	:	± 6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	12.0

TEST POINT L1

Rated speed rpm	:	450
Uact V	:	1.740
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.060
Del. quantity		
cm3/1000 strokes	:	26.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	10.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.550
Del. quantity		
cm3/1000 strokes	:	120.0
Tolerance		
cm3/1000 strokes	:	± 20.0
Check tolerance		
cm3/1000S.	:	± 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.01.98
Test oil : ISO 4113

Combination No. : 0 402 796 819

Injection pump
Pump designation : PES6P120A720RS7407
EP type number : 0 412 726 955

Governor
Governor design. : RE30
Governor no. : 0 421 890 037

Cust. part No. : RE 65679

Customer-spec. information
Customer : DEERE
Motor : 6101HRW10
Power KW : 266.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00

Difference ° CS : 3.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm³/1000 strokes : 213.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700

Uact V	:	3.120
Del. quantity		
cm3/1000 strokes	:	236.0
Tolerance		
cm3/1000 strokes	: +	3.0
Check tolerance		
cm3/1000S.	: +	6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	12.0

TEST POINT L1

Rated speed rpm	:	450
Uact V	:	1.740
Tolerance Volt	: +	0.060
Check tolerance		
Volt	: +	0.060
Del. quantity		
cm3/1000 strokes	:	26.0
Tolerance		
cm3/1000 strokes	: +	3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	10.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.550
Del. quantity		
cm3/1000 strokes	:	120.0
Tolerance		
cm3/1000 strokes	: +	20.0
Check tolerance		
cm3/1000S.	: +	25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.07.97
Test oil : ISO 4113

Combination No. : 0 402 796 823

Injection pump
Pump designation : PES6P120A720RS7356
EP type number : 0 412 726 919

Governor
Governor design. : RE30
Governor no. : 0 421 890 017

Cust. part No. : RE 67884

Customer-spec. information
Customer : DEERE
Motor : 6081 HRW 05
Power KW : 198.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00

Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm³/1000 strokes : 213.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700

Uact V	:	3.120
Del. quantity		
cm3/1000 strokes	:	237.0
Tolerance		
cm3/1000 strokes	: ±	3.0
Check tolerance		
cm3/1000S.	: ±	6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	12.0

TEST POINT L1

Rated speed rpm	:	450
Uact V	:	1.740
Tolerance Volt	: ±	0.060
Check tolerance		
Volt	: ±	0.060
Del. quantity		
cm3/1000 strokes	:	26.0
Tolerance		
cm3/1000 strokes	: ±	3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	10.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.550
Del. quantity		
cm3/1000 strokes	:	120.0
Tolerance		
cm3/1000 strokes	: ±	20.0
Check tolerance		
cm3/1000S.	: ±	25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.01.98
Test oil : ISO 4113
Combination No. : 0 402 996 311
Injection pump
Pump designation : PES6P120A720RS8512
 : -4
EP type number : 0 412 926 214
Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P2

Customer-spec. information

Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 413 359 008

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000s. : +/- 7.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 14.0

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : +/- 10.0
Check tolerance
cm3/1000s. : +/- 12.0
Speed

Tolerance
cm3/1000 strokes : 16.0
Check tolerance
cm3/1000S. : 18.0

Rated speed rpm : 450
Uact V : 1.310
Del. quantity
cm3/1000 strokes : 42.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Del. quantity
cm3/1000 strokes : 33.0
Spreed
Check tolerance
cm3/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : +- 19.0
Check tolerance
cm3/1000S. : +- 22.0
Spreed
Tolerance
cm3/1000 strokes : 40.0
Check tolerance
cm3/1000S. : 50.0

End of test specification sheet

Note remarks

Edition	: 06.01.98
Test oil	: ISO 4113
Combination No.	: 0 402 996 312
Injection pump	
Pump designation	: PES6P120A720RS8512
	: -5
EP type number	: 0 412 926 215
Governor	
Governer design.	: RE30
Governer no.	: 0 421 890 024

Customer-spec. information
Customer : MACK
Motor : E7

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

Barrel no. : 1

Warm-up time: 3 minutes at $n=600 \text{ min}^{-1}$, $U_{\text{act}} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 7.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : +/- 10.0
Check tolerance
cm3/1000S. : +/- 12.0
Speed

Tolerance
cm3/1000 strokes : 16.0
Check tolerance
cm3/1000S. : 18.0

Rated speed rpm : 450
Uact V : 1.310
Del. quantity
cm3/1000 strokes : 42.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 strokes : +- 6.0
Spreed
Check tolerance
cm3/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : +- 19.0
Check tolerance
cm3/1000S. : +- 22.0
Spreed
Tolerance
cm3/1000 strokes : 40.0
Check tolerance
cm3/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.98

Test oil : ISO 4113

Combination No. : 0 402 996 001

Injection pump

Pump designation : PE6P120A32ORS8053

EP type number : 0 412 926 033

Governor

Governer design. : RE30

Governer no. : 0 421 890 043

Cust. part No. : 1412293

Customer-spec. information

Customer : SCANIA

Motor : DSI9

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 104

Opening pressure bar

: 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 8.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 233.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 7.0

TEST POINT L1

Rated speed rpm	:	350
Rated speed rpm	:	350
Uact V	:	1.500
Uact V	:	1.500
Tolerance Volt	:	± 0.060
Del. quantity		
cm ³ /1000 strokes	:	21.0
Tolerance		
cm ³ /1000 strokes	:	± 3.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	4.0
Check tolerance		
cm ³ /1000S.	:	8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.02.98
Test oil : ISO 4113

Combination No. : 0 402 896 017

Injection pump
Pump designation : PE6P120A320RS8035
EP type number : 0 412 826 033

Governor
Governor design. : RE30
Governor no. : 0 421 890 030

Cust. part No. : 3825439
: -P02 v. 04.95

Customer-spec. information
Customer : PENTA
Motor : TWD 1231 ME
Power KW : 310.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 305.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1300
Uact V : 2.600
Del. quantity
cm³/1000 strokes : 212.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 1000
Uact V : 2.400
Del. quantity
cm³/1000 strokes : 208.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 800
Uact V : 2.200
Del. quantity
cm³/1000 strokes : 191.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.600
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.02.98
Test oil : ISO 4113

Combination No. : 0 402 896 019

Injection pump
Pump designation : PE6P120A32ORS8056
EP type number : 0 412 826 040

Governor
Governor design. : RE30
Governor no. : 0 421 890 030

Cust. part No. : 3827154
: -P01 v. 01.98

Customer-spec. information
Customer : PENTA
Motor : TAMD 74 P
Power KW : 353.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 9.90
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 3.195
Del. quantity
cm3/1000 strokes : 305.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1300
Uact V : 2.725
Del. quantity
cm3/1000 strokes : 214.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Speed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 1000
Uact V : 2.615
Del. quantity
cm3/1000 strokes : 209.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 800
Uact V : 2.485
Del. quantity
cm3/1000 strokes : 192.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.647
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.03.98
Test oil : ISO 4113

Combination No. : 0 402 196 713

Injection pump
Pump designation : PES6P120B320RS3398
EP type number : 0 412 026 807

Governor
Governor design. : RE30
Governor no. : 0 421 890 043

Cust. part No. : 1412887

Customer-spec. information
Customer : SCANIA
Motor : DSI9 56A
Power KW : 93.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

H06

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 Uact V : 3.000
 Tolerance
 cm³/1000 strokes : +/- 1.0
 Check tolerance
 cm³/1000S. : +/- 8.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0
 FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100
 Uact V : 3.000
 Tolerance
 cm³/1000 strokes : +/- 4.0
 Check tolerance
 cm³/1000S. : +/- 7.0

TEST POINT L1

Rated speed rpm : 350
 Rated speed rpm : 350
 Tolerance Volt : +/- 0.060
 Del. quantity
 cm³/1000 strokes : 21.0
 Tolerance
 cm³/1000 strokes : +/- 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.03.98

Test oil : ISO 4113

Combination No. : 0 402 996 001

Injection pump
Pump designation : PE6P120A320RS8053
EP type number : 0 412 926 033

Governor
Governor design. : RE30
Governor no. : 0 421 890 043

Cust. part No. : 1412293

Customer-spec. information
Customer : SCANIA
Motor : DSI9

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

H10

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 8.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 233.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 7.0

TEST POINT L1

Rated speed rpm : 350
Uact V : 1.400
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.01.96
Test oil : ISO 4113
Combination No. : 0 401 496 001
Injection pump
Pump designation : PE6R120/720RS1502
EP type number : 0 411 426 002
Governor
Governor design. : RE31
Governor no. : 0 421 890 200

Cust. part No. : 1556156
: -P07 v. 12/95

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 163 ES,EJ
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 5.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 550
Uact V : 2.950
Del. quantity
cm³/1000 strokes : 395.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.750
Del. quantity
cm³/1000 strokes : 295.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Spreed

Tolerance
cm³/1000 strokes : 9.0
Check tolerance
cm³/1000S. : 13.0

Rated speed rpm : 950
Uact V : 2.000
Del. quantity
cm³/1000 strokes : 163.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.530
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.03.98
Test oil : ISO 4113

Combination No. : 0 402 196 702

Injection pump
Pump designation : PES6P120A720RS3184
EP type number : 0 412 026 727

Governor
Governor design. : RE24
Governor no. : 0 421 890 006

Cust. part No. : RE 47396

Customer-spec. information
Customer : DEERE
Motor : 6076 F030
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : 10.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00

Tolerance mm : \pm 0.50
Difference ° CS : 6.00

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600$ min⁻¹, $U_{act} = 2.5$ V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

U_{act} V : 3.100
CRT mm : 13.00
Tolerance mm : \pm 0.05
Check
tolerance mm : \pm 0.10

Check value
(P, R and H pump)

U_{act} V : 1.700
CRT mm : 6.15
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.30

Setting point
(M pump)

U_{act} V : 3.100
CRT mm : 12.50
Tolerance mm : \pm 0.05
Check
tolerance mm : \pm 0.10

Check value
(M pump)

U_{act} V : 1.700
CRT mm : 5.50
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.30

Stop position
(P, R and H pump)

U_{act} V : Value with
deenergised adjusting magnet
and control rod in

stop position.
CRT mm : 0.75
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.35

Stop position
(M pump)

U_{act} V : 0,720
Tolerance Volt : \pm 0,065
CRT mm : 1,00

Starting position
(M pump)

U_{act} V : 4,500
Tolerance Volt : \pm 0,115
CRT mm : 19,00
Tolerance mm : \pm 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : \pm 0.6
Check
tolerance V : \pm 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
 U_{act} V : 2.710
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm	:	700
Uact V	:	2.710
Del. quantity		
cm3/1000 strokes	:	142.0
Tolerance		
cm3/1000 strokes	:	+ 3.0
Check tolerance		
cm3/1000S.	:	+ 6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	12.0

TEST POINT L1

Rated speed rpm	:	425
Uact V	:	1.400
Tolerance Volt	:	+ 0.060
Check tolerance		
Volt	:	+ 0.060
Del. quantity		
cm3/1000 strokes	:	19.0
Tolerance		
cm3/1000 strokes	:	+ 3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	10.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.600
Del. quantity		
cm3/1000 strokes	:	100.0
Tolerance		
cm3/1000 strokes	:	+ 10.0
Check tolerance		
cm3/1000S.	:	+ 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.03.98
Test oil : ISO 4113
Combination No. : 0 402 996 311
Injection pump
Pump designation : PES6P120A720RS8512
: -4
EP type number : 0 412 926 214
Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P2

Customer-spec. information
Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 413 359 008

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 14.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : +/- 10.0
Check tolerance
cm3/1000S. : +/- 12.0
Spreed

Tolerance
cm3/1000 strokes : 16.0
Check tolerance
cm3/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.270
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.070
Del. quantity
cm3/1000 strokes : 42.5
Tolerance
cm3/1000 strokes : \pm 2.5
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : \pm 19.0
Check tolerance
cm3/1000S. : \pm 22.0
Spreed
Tolerance
cm3/1000 strokes : 40.0
Check tolerance
cm3/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.03.98
Test oil : ISO 4113

Combination No. : 0 402 796 043

Injection pump
Pump designation : PES6H120/32ORS27
EP type number : 0 412 726 015

Governor
Governor design. : RE36
Governor no. : 0 421 890 375

Cust. part No. : 1402963

Customer-spec. information
Customer : SCANIA
Motor : DC9 01
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet Line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

H21

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
: - 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 3.160
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm3/1000 strokes : 319.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.260
Prestroke solenoid
Stroke mm : 6.40
Del. quantity
cm3/1000 strokes : 282.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : +- 7.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.680
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.03.98
Test oil : ISO 4113
Combination No. : 0 402 996 312
Injection pump
Pump designation : PES6P120A720RS8512
: -5
EP type number : 0 412 926 215
Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P1

Customer-spec. information
Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 413 359 008

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

H24

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 5.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 14.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : +/- 10.0
Check tolerance
cm3/1000S. : +/- 12.0
Speed

Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000s. : 18.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.270
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.070
Del. quantity
cm³/1000 strokes : 42.5
Tolerance
cm³/1000 strokes : \pm 2.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 19.0
Check tolerance
cm³/1000s. : \pm 22.0
Spreed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000s. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.04.98
Test oil : ISO 4113

Combination No. : 0 402 698 808

Injection pump
Pump designation : PE8P120A320LS7921
EP type number : 0 412 628 932

Governor
Governor design. : RE30
Governor no. : 0 421 890 045

Cust. part No. : 9883188

Customer-spec. information
Customer : LIEBHERR
Motor : D9408TI-EA4
Power KW : 440.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

H27

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6-
: 3- 5- 4

Phasing : 0-45- 90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
 Uact V : 3.000
 Del. quantity
 cm3/1000 strokes : 295.0
 Tolerance
 cm3/1000 strokes : +/- 1.0
 Check tolerance
 cm3/1000S. : +/- 4.0
 Spreed
 Tolerance
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0
 FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800
 Uact V : 2.880
 Del. quantity
 cm3/1000 strokes : 300.0
 Tolerance
 cm3/1000 strokes : +/- 3.0
 Check tolerance
 cm3/1000S. : +/- 6.0

Rated speed rpm : 550
 Uact V : 2.190
 Del. quantity
 cm3/1000 strokes : 209.0
 Tolerance
 cm3/1000 strokes : +/- 3.0
 Check tolerance
 cm3/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm	:	350
Uact V	:	1.370
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.060
Del. quantity		
cm3/1000 strokes	:	15.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	10.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	2.340
Del. quantity		
cm3/1000 strokes	:	146.0
Tolerance		
cm3/1000 strokes	:	± 10.0
Check tolerance		
cm3/1000S.	:	± 10.0
Spreed		
Tolerance		
cm3/1000 strokes	:	25.0
Check tolerance		
cm3/1000S.	:	29.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.04.98
Test oil : ISO 4113

Combination No. : 0 402 698 809

Injection pump
Pump designation : PE8P120A320LS7924
EP type number : 0 412 628 933

Governor
Governor design. : RE30
Governor no. : 0 421 890 041

Cust. part No. : 0260745002

Customer-spec. information
Customer : MTU
Motor : 8 V 183 TE93
Power KW : 564.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1200
Uact V : 3.220
Del. quantity
cm3/1000 strokes : 331.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.220
Del. quantity
cm3/1000 strokes : 385.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.270
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 3.600
Del. quantity
cm³/1000 strokes : 445.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.05.98

Test oil : ISO 4113

Combination No. : 0 402 696 034

Injection pump

Pump designation : PE6H120/320LS28

EP type number : 0 412 626 006

Governor

Governor design. : RE36

Governor no. : 0 421 890 376

Cust. part No. : A 028 074 14 02

Customer-spec. information

Customer : MTU

Motor : OM 441 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 375.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 339.0
Tolerance
cm3/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Rated speed rpm : 550
Uact V : 2.800
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm³/1000 strokes : 367.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : +- 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.05.98
Test oil : ISO 4113

Combination No. : 0 401 496 004

Injection pump
Pump designation : PE6R120/720RS1512
EP type number : 0 411 426 005

Governor
Governor design. : RE31
Governor no. : 0 421 890 202

Cust. part No. : 1556958
: -P02 v. 03/98

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 164
Power KW : 382.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.35

Stop position
(M pump)

$U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)

$U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 525
 $U_{act} \text{ V}$: 2.950
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 390.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Speed
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 6.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 10.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900

Uact V	:	3.240
Del. quantity		
cm3/1000 strokes	:	385.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Check tolerance		
cm3/1000S.	:	± 6.0
Speed		
Tolerance		
cm3/1000 strokes	:	9.0
Check tolerance		
cm3/1000S.	:	13.0

Rated speed rpm	:	900
Uact V	:	2.000
Del. quantity		
cm3/1000 strokes	:	159.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Check tolerance		
cm3/1000S.	:	± 6.0

TEST POINT L1

Rated speed rpm	:	265
Rated speed rpm	:	265
Uact V	:	1.630
Uact V	:	1.630
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.060
Del. quantity		
cm3/1000 strokes	:	19.0
Del. quantity		
cm3/1000 strokes	:	20.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Speed		
Tolerance		
cm3/1000 strokes	:	7.0
Tolerance		
cm3/1000 strokes	:	7.0
Check tolerance		
cm3/1000S.	:	11.0
Check tolerance		
cm3/1000S.	:	11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.05.98
Test oil : ISO 4113

Combination No. : 0 402 196 713

Injection pump
Pump designation : PES6P120B320RS3398
EP type number : 0 412 026 807

Governor
Governor design. : RE30
Governor no. : 0 421 890 047

Cust. part No. : 1412887

Customer-spec. information
Customer : SCANIA
Motor : DSI9 56A
Power KW : 93.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Vibration
damper
(RoBo diaphragm) : 4.2

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115

CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 212.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 8.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 198.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 7.0

TEST POINT L1

Rated speed rpm : 350
Uact V : 1.140
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060

Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.05.98
Test oil : ISO 4113

Combination No. : 0 402 796 826

Injection pump
Pump designation : PES6P110A720RS7452
EP type number : 0 412 716 811

Governor
Governor design. : RE30
Governor no. : 0 421 890 046

Cust. part No. : 988 2590

Customer-spec. information

Customer : LIEBHERR
Motor : D926TI-EA4
Power KW : 230.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6-
: 2- 4

Phasing : 0- 60- 120- 180
: - 240- 300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position

(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.360
Del. quantity
cm³/1000 strokes : 205.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800
Uact V : 3.120
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0

Rated speed rpm : 500
Uact V : 2.700

Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

TEST POINT L1

Rated speed rpm : 350
Uact V : 1.660
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.660
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.05.98
Test oil : ISO 4113

Combination No. : 0 402 896 015

Injection pump
Pump designation : PE6P120A320RS8033
EP type number : 0 412 826 031

Governor
Governor design. : RE30
Governor no. : 0 421 890 027

Cust. part No. : 425758 P05 v. 11/95

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : DH 10 A
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0
Tolerance bar : ± 0.2

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 295.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 252.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Speed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm3/1000 strokes : 178.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 strokes : + 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.05.98
Test oil : ISO 4113

Combination No. : 0 402 896 016

Injection pump
Pump designation : PE6P120A320RS8034
EP type number : 0 412 826 032

Governor
Governor design. : RE30
Governor no. : 0 421 890 028

Cust. part No. : 8194088 P06 v.02.98

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : D 10, DH 10
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0
Tolerance bar : ± 0.2

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 303.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 261.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm3/1000 strokes : 181.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.05.98
Test oil : ISO 4113
Combination No. : 0 402 196 714
Injection pump
Pump designation : PES6P120A720RS3404
EP type number : 0 412 026 809
Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 502259

Customer-spec. information
Customer : DEERE
Motor : 6076 HRW35
Power KW : 181.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 10.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.710
Del. quantity
cm3/1000 strokes : 141.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.710
Del. quantity
cm3/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.400
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.06.98
Test oil : ISO 4113

Combination No. : 0 402 696 032

Injection pump
Pump designation : PE6H120/320LS16
EP type number : 0 412 626 005

Governor
Governor design. : RE36
Governor no. : 0 421 890 369

Cust. part No. : 0250746502

Customer-spec. information
Customer : MB-MET
Motor : OM 441 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 375.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 339.0
Tolerance
cm3/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Rated speed rpm : 550
Uact V : 2.800
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm³/1000 strokes : 367.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 15.12.97

Test oil : ISO 4113

Combination No. : 0 402 696 806

Injection pump

Pump designation : PES6P120A720RS8512

: -2

EP type number : 0 412 636 838

Governor

Governor design. : RE30

Governor no. : 0 421 890 048

Cust. part No. : CCEP 5156 66-242

Customer-spec. information

Customer : RENAULT V.I.

Motor : 062465A42B42C42

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 413 359 009

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 103

Opening pressure
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 12.00

Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.15

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.

mm : 20.50

and maximum rack
travel : 12.00
Difference ° CS : 3.10

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet

and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 12.0
Spreed
Tolerance
cm3/1000 strokes : 16.0
Check tolerance
cm3/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.070
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : \pm 19.0
Check tolerance
cm3/1000S. : \pm 22.0
Spreed
Tolerance
cm3/1000 strokes : 40.0
Check tolerance
cm3/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.12.97
Test oil : ISO 4113
Combination No. : 0 402 996 307
Injection pump
Pump designation : PES6P120A720RS8512
 : -2
EP type number : 0 412 926 212
Governor
Governor design. : RE30
Governor no. : 0 421 890 024
Cust. part No. : CCEP 5156 66-242

Customer-spec. information
Customer : RENAULT V.I.
Motor : 062465A42B42C42

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 413 359 009
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

K04

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.00
Tolerance mm : ± 0.20
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
°NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1
Beginning of delivery differende
betw. rack trav.
mm : 20.50

and maximum rack
travel : 12.00
Difference ° CS : 3.10

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet

and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm	:	625
Uact V	:	3.260
Del. quantity		
cm3/1000 strokes	:	392.0
Tolerance		
cm3/1000 strokes	:	± 10.0
Check tolerance		
cm3/1000S.	:	± 12.0
Spreed		
Tolerance		
cm3/1000 strokes	:	16.0
Check tolerance		
cm3/1000S.	:	18.0

TEST POINT L1

Rated speed rpm	:	325
Uact V	:	1.310
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.070
Del. quantity		
cm3/1000 strokes	:	33.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	14.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm3/1000 strokes	:	195.0
Tolerance		
cm3/1000 strokes	:	± 19.0
Check tolerance		
cm3/1000S.	:	± 22.0
Spreed		
Tolerance		
cm3/1000 strokes	:	40.0
Check tolerance		
cm3/1000S.	:	50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.12.97
Test oil : ISO 4113

Combination No. : 0 402 796 207

Injection pump
Pump designation : PES6H120/32ORS1008
: -1
EP type number : 0 412 726 208

Governor
Governor design. : RE33
Governor no. : 0 421 890 367

Cust. part No. : 309 4347

Customer-spec. information
Customer : CUMMINS
Motor : QST30
Power KW : 783.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 7.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW before FB : 24.90

Tolerance : \pm 0.50
Check
tolerance °NW : \pm 0.75
Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 13.00
Tolerance mm : \pm 0.05
Check
tolerance mm : \pm 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 6.15
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 12.50
Tolerance mm : \pm 0.05
Check
tolerance mm : \pm 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 5.50
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.35

Stop position
(M pump)

$U_{act} \text{ V}$: 0,720
Tolerance Volt : \pm 0,065
CRT mm : 1,00

Starting position
(M pump)

$U_{act} \text{ V}$: 4,500
Tolerance Volt : \pm 0,115
CRT mm : 19,00
Tolerance mm : \pm 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : \pm 0.6
Check
tolerance V : \pm 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
 $U_{act} \text{ V}$: 3.315
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 358.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: \pm 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: \pm 4.0
Speed
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0

Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 386.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.400
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 6.00
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 6.00
Del. quantity
cm³/1000 strokes : 245.0
Check tolerance
cm³/1000S. : \pm 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.98

Test oil : ISO 4113

Combination No. : 0 402 696 806

Injection pump

Pump designation : PE6P130A1320/6RS7454

EP type number : 0 412 636 838

Governor

Governer design. : RE30

Governer no. : 0 421 890 048

Cust. part No. :

Customer-spec. information

Customer : GUASCOR

Motor : f180/ f360

Power KW : 430.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 370.0
Tolerance
cm3/1000 strokes : +/- 1.5
Check tolerance
cm3/1000S. : +/- 5.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0
FUEL DELIVERY CHARACTERISTICS

TEST POINT L1

Rated speed rpm : 350
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.070
Del. quantity
cm3/1000 strokes : 18.0
Tolerance
cm3/1000 strokes : +/- 3.0
Speed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.98
Test oil : ISO 4113

Combination No. : 0 402 698 810

Injection pump
Pump designation : PE8P130A1320/6RS7455
EP type number : 0 412 638 808

Governor
Governor design. : RE30
Governor no. : 0 421 890 048

Cust. part No. :

Customer-spec. information
Customer : GUASCOR
Motor : f240/ f480
Power KW : 580.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 0.50

Firing order : 1- 4- 2- 6- 8-
: 5- 7- 3

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 371.0
Tolerance
cm3/1000 strokes : +/- 1.5
Check tolerance
cm3/1000S. : +/- 5.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0
FUEL DELIVERY CHARACTERISTICS

TEST POINT L1

Rated speed rpm : 350
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.070
Del. quantity
cm3/1000 strokes : 18.5
Tolerance
cm3/1000 strokes : +/- 3.0
Speed

Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.98
Test oil : ISO 4113

Combination No. : 0 402 796 826

Injection pump
Pump designation : PES6P110A72ORS7452
EP type number : 0 412 716 811

Governor
Governor design. : RE30
Governor no. : 0 421 890 046

Cust. part No. : 988 2590

Customer-spec. information
Customer : LIEBHERR
Motor : D926TI-EA4
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6-
: 2- 4

Phasing : 0- 60- 120- 180
: - 240- 300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.360
Del. quantity
cm3/1000 strokes : 205.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800
Uact V : 3.120
Del. quantity
cm3/1000 strokes : 201.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 500
Uact V : 2.700
Del. quantity
cm3/1000 strokes : 184.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 350
Uact V : 1.660
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 25.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.660
Del. quantity
cm3/1000 strokes : 170.0
Tolerance
cm3/1000 strokes : \pm 15.0
Check tolerance
cm3/1000S. : \pm 19.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.98
Test oil : ISO 4113

Combination No. : 0 402 896 020

Injection pump
Pump designation : PE6P120A320RS8057
EP type number : 0 412 826 041

Governor
Governor design. : RE30
Governor no. : 0 421 890 028

Cust. part No. : 8194566 P01 v.02.98

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : D 10
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0
Tolerance bar : ± 0.2

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 303.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 261.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm3/1000 strokes : 181.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.07.98

Test oil : ISO 4113

Combination No. : 0 402 696 805

Injection pump

Pump designation : PE6P120A320LS7922

EP type number : 0 412 626 975

Governor

Governor design. : RE30

Governor no. : 0 421 890 045

Cust. part No. : 9883189

Customer-spec. information

Customer : LIEBHERR

Motor : D9406TI-EA4

Power KW : 330.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 295.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800
Uact V : 2.880
Del. quantity
cm3/1000 strokes : 303.5
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 550
Uact V : 2.190
Del. quantity
cm3/1000 strokes : 213.5
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 350
Uact V : 1.330
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 strokes : \pm 3.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.340
Del. quantity
cm3/1000 strokes : 150.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.07.98

Test oil : ISO 4113

Combination No. : 0 402 696 806

Injection pump

Pump designation : PE6P130A1320/6RS7454

EP type number : 0 412 636 838

Governor

Governor design. : RE30

Governor no. : 0 421 890 048

Cust. part No. :

Customer-spec. information

Customer : GUASCOR

Motor : f180/ f360

Power KW : 430.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holder assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 370.0
Tolerance
cm3/1000 strokes : +/- 1.5
Check tolerance
cm3/1000S. : +/- 5.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0
FUEL DELIVERY CHARACTERISTICS

TEST POINT L1

Rated speed rpm : 350
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.070
Del. quantity
cm3/1000 strokes : 18.0
Tolerance
cm3/1000 strokes : +/- 3.0
Speed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.07.98
Test oil : ISO 4113

Combination No. : 0 402 698 808

Injection pump
Pump designation : PE8P120A320LS7921
EP type number : 0 412 628 932

Governor
Governor design. : RE30
Governor no. : 0 421 890 045

Cust. part No. : 9883188

Customer-spec. information

Customer : LIEBHERR
Motor : D9408TI-EA4
Power KW : 440.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

K27

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6-
: 3- 5- 4

Phasing : 0-45- 90-135-180
: -225-270-315____
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 295.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800
Uact V : 2.880
Del. quantity
cm3/1000 strokes : 300.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 550
Uact V : 2.190
Del. quantity
cm3/1000 strokes : 209.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 350
Uact V : 1.370
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.340
Del. quantity
cm3/1000 strokes : 146.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 10.0
Spreed
Tolerance
cm3/1000 strokes : 25.0
Check tolerance
cm3/1000S. : 29.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.07.98

Test oil : ISO 4113

Combination No. : 0 402 698 810

Injection pump

Pump designation : PE8P130A1320/6RS7455

EP type number : 0 412 638 808

Governor

Governer design. : RE30

Governer no. : 0 421 890 048

Cust. part No. :

Customer-spec. information

Customer : GUASCOR

Motor : f240/ f480

Power KW : 580.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00

Tolerance mm : ± 0.50

Firing order : 1- 4- 2- 6- 8-
: 5- 7- 3

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
 Uact V : 2.950
 Del. quantity
 cm³/1000 strokes : 371.0
 Tolerance
 cm³/1000 strokes : +/- 1.5
 Check tolerance
 cm³/1000S. : +/- 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0
 FUEL DELIVERY CHARACTERISTICS

TEST POINT L1

Rated speed rpm : 350
 Uact V : 1.450
 Tolerance Volt : +/- 0.060
 Check tolerance
 Volt : +/- 0.070
 Del. quantity
 cm³/1000 strokes : 18.5
 Tolerance
 cm³/1000 strokes : +/- 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 10.0
 Check tolerance
 cm³/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.07.98
Test oil : ISO 4113

Combination No. : 0 402 896 015

Injection pump
Pump designation : PE6P120A320RS8033
EP type number : 0 412 826 031

Governor
Governor design. : RE30
Governor no. : 0 421 890 027

Cust. part No. : 425758 P05 v. 11/95

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : DH 10 A
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

L05

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0
Tolerance bar : ± 0.2

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 295.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 252.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Speed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm3/1000 strokes : 178.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.95
Test oil : ISO 4113

Combination No. : 0 402 896 300

Injection pump
Pump designation : PE6P130A72ORS8516
EP type number : 0 412 836 201

Governor
Governor design. : RE30
Governor no. : 0 421 890 032

Cust. part No. : 309 3272

Customer-spec. information
Customer : CUMMINS
Motor : V30
Power KW : 1007.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

L08

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.00
Tolerance mm : ± 1.50
Difference ° CS : 6.00

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75

Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 434.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.000

Del. quantity
cm³/1000 strokes : 441.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 12.0
Spreed
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 400
Uact V : 1.280
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.070
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : +- 19.0
Check tolerance
cm³/1000S. : +- 22.0
Spreed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.95
Test oil : ISO 4113

Combination No. : 0 402 896 301

Injection pump
Pump designation : PE6P130A320RS8517
EP type number : 0 412 836 202

Governor
Governor design. : RE30
Governor no. : 0 421 890 033

Cust. part No. : 309 3273

Customer-spec. information
Customer : CUMMINS
Motor : V30
Power KW : 1007.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW before FB : 25.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 10.00
Tolerance mm : \pm 1.50
Difference ° CS : 6.00

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 13.00
Tolerance mm : \pm 0.05
Check
tolerance mm : \pm 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 6.15
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 12.50
Tolerance mm : \pm 0.05
Check
tolerance mm : \pm 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 5.50
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with

deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : \pm 0.25
Check
tolerance mm : \pm 0.35

Stop position
(M pump)

$U_{act} \text{ V}$: 0,720
Tolerance Volt : \pm 0,065
CRT mm : 1,00

Starting position
(M pump)

$U_{act} \text{ V}$: 4,500
Tolerance Volt : \pm 0,115
CRT mm : 19,00
Tolerance mm : \pm 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : \pm 0.6
Check
tolerance V : \pm 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
 $U_{act} \text{ V}$: 3.050
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 425.5
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: \pm 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: \pm 5.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 10.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 14.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm	:	750
Uact V	:	3.000
Del. quantity		
cm ³ /1000 strokes	:	434.0
Tolerance		
cm ³ /1000 strokes	:	± 10.0
Check tolerance		
cm ³ /1000S.	:	± 12.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	16.0
Check tolerance		
cm ³ /1000S.	:	18.0

TEST POINT L1

Rated speed rpm	:	400
Uact V	:	1.280
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.070
Del. quantity		
cm ³ /1000 strokes	:	49.0
Tolerance		
cm ³ /1000 strokes	:	± 3.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	8.0
Check tolerance		
cm ³ /1000S.	:	14.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm ³ /1000 strokes	:	260.0
Tolerance		
cm ³ /1000 strokes	:	± 19.0
Check tolerance		
cm ³ /1000S.	:	± 22.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	40.0
Check tolerance		
cm ³ /1000S.	:	50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.07.98
Test oil : ISO 4113

Combination No. : 0 402 796 826

Injection pump
Pump designation : PES6P110A720RS7452
EP type number : 0 412 716 811

Governor
Governor design. : RE30
Governor no. : 0 421 890 046

Cust. part No. : 988 2590

Customer-spec. information
Customer : LIEBHERR
Motor : D926TI-EA4
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6-
: 2- 4

Phasing : 0- 60- 120- 180
: - 240- 300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 180.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 3.360
Del. quantity
cm3/1000 strokes : 205.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800
Uact V : 3.120
Del. quantity
cm3/1000 strokes : 201.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm	:	500
Uact V	:	2.700
Del. quantity		
cm3/1000 strokes	:	184.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Check tolerance		
cm3/1000S.	:	± 6.0

TEST POINT L1

Rated speed rpm	:	350
Uact V	:	1.660
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.060
Del. quantity		
cm3/1000 strokes	:	25.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Speed		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	10.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	2.660
Del. quantity		
cm3/1000 strokes	:	170.0
Tolerance		
cm3/1000 strokes	:	± 15.0
Check tolerance		
cm3/1000S.	:	± 19.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.07.98

Test oil : ISO 4113

Combination No. : 0 402 696 806

Injection pump

Pump designation : PE6P130A1320/6RS7454

EP type number : 0 412 636 838

Governor

Governor design. : RE30

Governor no. : 0 421 890 048

Cust. part No. :

Customer-spec. information

Customer : GUASCOR

Motor : f180/ f360

Power KW : 430.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check tolerance mm : ± 0.10

Rack travel in mm : 20.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
 Uact V : 2.950
 Del. quantity
 cm3/1000 strokes : 370.0
 Tolerance
 cm3/1000 strokes : +/- 1.5
 Check tolerance
 cm3/1000S. : +/- 5.0
 Spreed
 Tolerance
 cm3/1000 strokes : 6.0
 Check tolerance
 cm3/1000S. : 10.0
 FUEL DELIVERY CHARACTERISTICS

TEST POINT L1

Rated speed rpm : 350
 Uact V : 1.450
 Tolerance Volt : +/- 0.060
 Check tolerance
 Volt : +/- 0.070
 Del. quantity
 cm3/1000 strokes : 18.0
 Tolerance
 cm3/1000 strokes : +/- 3.0
 Spreed
 Tolerance
 cm3/1000 strokes : 10.0
 Check tolerance
 cm3/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.98
Test oil : ISO 4113

Combination No. : 0 402 896 015

Injection pump
Pump designation : PE6P120A32ORS8033
EP type number : 0 412 826 031

Governor
Governor design. : RE30
Governor no. : 0 421 890 027

Cust. part No. : 425758 P05 v. 11/95

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : DH 10 A
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

L20

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0
Tolerance bar : ± 0.2

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 295.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 252.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed

Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm³/1000 strokes : 178.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.07.98
Test oil : ISO 4113

Combination No. : 0 402 896 019

Injection pump
Pump designation : PE6P120A32ORS8056
EP type number : 0 412 826 040

Governor
Governor design. : RE30
Governor no. : 0 421 890 030

Cust. part No. : 3827154
: -P01 v. 01.98

Customer-spec. information
Customer : PENTA
Motor : TAMD 74 P
Power KW : 353.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 9.90
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 3.195
Del. quantity
cm3/1000 strokes : 297.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1300
Uact V : 2.725
Del. quantity
cm3/1000 strokes : 213.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 1000
Uact V : 2.615
Del. quantity
cm3/1000 strokes : 203.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 800
Uact V : 2.485
Del. quantity
cm3/1000 strokes : 188.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.647
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.07.98
Test oil : ISO 4113

Combination No. : 0 402 696 807

Injection pump
Pump designation : PE6P120A320LS7930
EP type number : 0 412 626 979

Governor
Governor design. : RE30
Governor no. : 0 421 890 049

Cust. part No. : 04225415 KY

Customer-spec. information

Customer : DEUTZ
Motor : BF 6 M 1015 C
Power KW : 330.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1 - 6 - 3 - 5 - 2 -
4

Phasing : 0-75-120-195-240
-315

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 Uact V : 3.100
 Del. quantity
 cm3/1000 strokes : 385.0
 Tolerance
 cm3/1000 strokes : +/- 1.0
 Check tolerance
 cm3/1000S. : +/- 4.0
 Spreed
 Tolerance
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0
 FUEL DELIVERY CHARACTERISTICS

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.540
 Del. quantity
 cm3/1000 strokes : 21.0
 Tolerance
 cm3/1000 strokes : +/- 3.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Uact V : 4.750

Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.07.98
Test oil : ISO 4113

Combination No. : 0 402 698 811

Injection pump
Pump designation : PE8P120A320LS7931
EP type number : 0 412 628 935

Governor
Governor design. : RE30
Governor no. : 0 421 890 049

Cust. part No. : 04225419 KY

Customer-spec. information

Customer : DEUTZ
Motor : BF 8 M 1015 C
Power KW : 440.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

MO1

x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1 - 5 - 3 - 7 - 4 -
: 2 - 8 - 6

Phasing : 0-45-135-180-225
: -270-270-315

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Stop position
 (P, R and H pump)

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

Stop position
 (M pump)

Uact V : 0,720
 Tolerance Volt : +- 0,065
 CRT mm : 1,00

Starting position
 (M pump)

Uact V : 4,500
 Tolerance Volt : +- 0,115
 CRT mm : 19,00
 Tolerance mm : +- 0,80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 Uact V : 3.100
 Del. quantity
 cm³/1000 strokes : 385.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 FUEL DELIVERY CHARACTERISTICS

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.540
 Del. quantity
 cm³/1000 strokes : 21.0
 Tolerance
 cm³/1000 strokes : +- 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Uact V : 4.750

Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.08.98
Test oil : ISO 4113

Combination No. : 0 402 196 715

Injection pump
Pump designation : PES6P120B720RS3408
EP type number : 0 412 026 811

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 502697

Customer-spec. information
Customer : DEERE
Motor : 6081HRW06
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25

Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 3.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880

Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.08.98
Test oil : ISO 4113

Combination No. : 0 402 196 716

Injection pump
Pump designation : PES6P120B720RS3408
EP type number : 0 412 026 811

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 502698

Customer-spec. information
Customer : DEERE
Motor : 6081HRW08
Power KW : 203.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

M07

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : ± 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position

MO8

(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm3/1000 strokes : 140.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880
Del. quantity
cm3/1000 strokes : 141.5
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.08.98
Test oil : ISO 4113

Combination No. : 0 402 796 208

Injection pump
Pump designation : PES6H120/720/3LS1018
EP type number : 0 412 726 214

Governor
Governor design. : RE33
Governor no. : 0 421 890 371

Cust. part No. : 51.11103-7591

Customer-spec. information

Customer : MAN
Motor : D 2876 LF 01
Power KW : 338.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 405.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 372.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : +- 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 217.0
Tolerance
cm³/1000 strokes : +- 4.0
Check tolerance
cm³/1000S. : +- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : +- 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.08.98
Test oil : ISO 4113

Combination No. : 0 402 890 300

Injection pump
Pump designation : PE12P120A520LS8524
EP type number : 0 412 820 202

Governor
Governor design. : RE30
Governor no. : 0 421 890 036

Cust. part No. : 51.11103-7575

Customer-spec. information
Customer : MAN
Motor : D 2842 LF 03
Power KW : 559.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

M13

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 6.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8
 : - 3- 4- 11- 10
 : - 2- 6- 7

Phasing : 0-45-60-105-120
 : -165-180-225-240
 : -285-300-345

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.100
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 12.0
Check tolerance
cm3/1000S. : 16.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 1.900
Del. quantity
cm3/1000 strokes : 171.0
Tolerance
cm3/1000 strokes : +/- 5.0
Check tolerance
cm3/1000S. : +/- 9.0

TEST POINT L1

Rated speed rpm	:	300
Uact V	:	1.340
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.080
Del. quantity		
cm ³ /1000 strokes	:	25.0
Tolerance		
cm ³ /1000 strokes	:	± 5.0
Speed		
Tolerance		
cm ³ /1000 strokes	:	12.0
Check tolerance		
cm ³ /1000s.	:	16.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.08.98

Test oil : ISO 4113

Combination No. : 0 402 890 301

Injection pump

Pump designation : PE12P120A520LS8525

EP type number : 0 412 820 203

Governor

Governer design. : RE30

Governer no. : 0 421 890 040

Cust. part No. : 51.11103-7552

Customer-spec. information

Customer : MAN

Motor : D 2842 LE 404

Power KW : 956.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.20

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00

Tolerance mm : ± 0.50

Firing order : 1A- 5-9A- 8- 3A- 4

: -11A- 10- 2A- 6

: - 7A

Phasing : 0-15-60-75-120-135

: -180-195-240-255

: -300-315

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 315.00

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.360
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.220
Del. quantity
cm3/1000 strokes : 185.0

Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 9.0
Spreed
Tolerance
cm3/1000 strokes : 12.0
Check tolerance
cm3/1000S. : 16.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 1.890

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 2.160
Del. quantity
cm3/1000 strokes : 165.0
Tolerance
cm3/1000 strokes : \pm 15.0
Check tolerance
cm3/1000S. : \pm 15.0

TEST POINT L1

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300
Uact V : 1.600
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.08.98

Test oil : ISO 4113

Combination No. : 0 402 899 301

Injection pump

Pump designation : PE10P120A520LS8523

EP type number : 0 412 829 202

Governor

Governer design. : RE30

Governer no. : 0 421 890 040

Cust. part No. : 51.11103-7531

Customer-spec. information

Customer : MAN

Motor : D 2840 LE 403

Power KW : 772.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.20

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00

Tolerance mm : ± 0.50

Firing order : 1A- 8-7A- 6- 3A- 5
: - 2A- 10- 9A- 4
: (A=Abschaltelement
:)

Phasing : 0-27-72-99-144-171
: -216-243-288-315

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1150
Uact V : 3.360
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.220
Del. quantity
cm³/1000 strokes : 185.0

Tolerance
cm3/1000 strokes : \pm 5.0
Check tolerance
cm3/1000S. : \pm 9.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 1.890

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Rated speed rpm : 500
Uact V : 2.160
Del. quantity
cm3/1000 strokes : 165.0
Tolerance
cm3/1000 strokes : \pm 15.0
Check tolerance
cm3/1000S. : \pm 15.0

TEST POINT L1

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300
Uact V : 1.600
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.97
Test oil : ISO 4113
Combination No. : 0 402 796 204
Injection pump
Pump designation : PES6H120/720/3LS1014
EP type number : 0 412 726 210
Governor
Governor design. : RE33
Governor no. : 0 421 890 371

Cust. part No. : 51.11103-7539

Customer-spec. information
Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 082
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 0.50
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 328.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 308.0
Tolerance
cm3/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.09.98
Test oil : ISO 4113

Combination No. : 0 402 896 016

Injection pump
Pump designation : PE6P120A320RS8034
EP type number : 0 412 826 032

Governor
Governor design. : RE30
Governor no. : 0 421 890 028

Cust. part No. : 8194088 P06 v.02.98

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : D 10, DH 10
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0
Tolerance bar : ± 0.2

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 303.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 261.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm3/1000 strokes : 184.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.09.98
Test oil : ISO 4113

Combination No. : 0 402 896 020

Injection pump
Pump designation : PE6P120A320RS8057
EP type number : 0 412 826 041

Governor
Governor design. : RE30
Governor no. : 0 421 890 028

Cust. part No. : 8194566 P01 v.02.98

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : D 10
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

M28

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0
Tolerance bar : ± 0.2

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 303.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm3/1000 strokes : 261.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0
Speed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm3/1000 strokes : 184.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 strokes : \pm 3.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.98
Test oil : ISO 4113

Combination No. : 0 402 796 043

Injection pump
Pump designation : PES6H120/32ORS27
EP type number : 0 412 726 015

Governor
Governor design. : RE36
Governor no. : 0 421 890 375

Cust. part No. : 1402963

Customer-spec. information
Customer : SCANIA
Motor : DC9 01
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

N03

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
: - 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 3.160
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm3/1000 strokes : 319.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.260
Prestroke solenoid
Stroke mm : 6.40
Del. quantity
cm3/1000 strokes : 282.0

Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 7.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.680
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 18.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.09.98
Test oil : ISO 4113

Combination No. : 0 402 795 201

Injection pump
Pump designation : PES5H120/720/3LS1002
EP type number : 0 412 725 201

Governor
Governor design. : RE33
Governor no. : 0 421 890 354

Cust. part No. : 51.11103-7254

Customer-spec. information
Customer : MAN
Motor : D2865LF09

TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

NO7

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 309.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 8.0

Rated speed rpm : 500

Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm3/1000 strokes : 304.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm3/1000 strokes : 168.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 8.0

Rated speed rpm : 700
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 8.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

N08

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 173.0
Check tolerance
cm3/1000S. : +- 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.09.98
Test oil : ISO 4113
Combination No. : 0 402 795 202
Injection pump
Pump designation : PES5H120/720/3LS1012
EP type number : 0 412 725 208
Governor
Governor design. : RE33
Governor no. : 0 421 890 372

Cust. part No. : 51.11103-7408

Customer-spec. information
Customer : MAN
Motor : D 2865 LUH 07
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

N09

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 332.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 312.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 8.0

Rated speed rpm : 500

Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm3/1000 strokes : 173.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0

Rated speed rpm : 700
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 32.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 185.0
Tolerance
cm3/1000 strokes : \pm 10.0

Check tolerance
cm3/1000S. : \pm 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.09.98
Test oil : ISO 4113

Combination No. : 0 402 796 036

Injection pump
Pump designation : PES6H120/320RS23
EP type number : 0 412 726 012

Governor
Governor design. : RE36
Governor no. : 0 421 890 373

Cust. part No. : 51.11103-7478

Customer-spec. information

Customer : MAN
Motor : D 0826 LUH 12
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.0

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 800
Uact V : 2.510
Prestroke solenoid
Stroke mm : 13.20
Del. quantity
cm3/1000 strokes : 222.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1200
Uact V : 2.540
Prestroke solenoid
Stroke mm : 10.30
Del. quantity
cm3/1000 strokes : 209.0
Tolerance
cm3/1000 strokes : +/- 6.0
Check tolerance
cm3/1000S. : +/- 10.0

Rated speed rpm : 500

Uact V : 1.930
Prestroke solenoid
Stroke mm : 10.40
Del. quantity
cm3/1000 strokes : 146.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0

Rated speed rpm : 700
Prestroke solenoid
Stroke mm : 10.30
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.440
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Prestroke solenoid
Stroke mm : 8.80
Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.100
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 104.0
Tolerance
cm3/1000 strokes : \pm 6.0

Check tolerance
cm3/1000S. : \pm 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.09.98
Test oil : ISO 4113
Combination No. : 0 402 796 201
Injection pump
Pump designation : PES6H120/720/3LS1001
EP type number : 0 412 726 201
Governor
Governor design. : RE33
Governor no. : 0 421 890 354

Cust. part No. : 51.11103-7255

Customer-spec. information
Customer : MAN
Motor : D2866LF14

TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 082
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 4.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 309.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000s. : +/- 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 304.0
Check tolerance
cm³/1000S. : \pm 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Check tolerance
cm³/1000S. : \pm 8.0

Rated speed rpm : 700
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 8.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450

Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 173.0
Check tolerance
cm³/1000S. : \pm 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.09.98
Test oil : ISO 4113
Combination No. : 0 402 796 204
Injection pump
Pump designation : PES6H120/720/3LS1014
EP type number : 0 412 726 210
Governor
Governor design. : RE33
Governor no. : 0 421 890 371

Cust. part No. : 51.11103-7539

Customer-spec. information
Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 082
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 10.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 0.50
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 328.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 308.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 8.0

Rated speed rpm : 500

Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm3/1000 strokes : 168.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0

Rated speed rpm : 700
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 25.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 177.0
Tolerance
cm3/1000 strokes : \pm 10.0

Check tolerance
cm3/1000S. : \pm 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.98
Test oil : ISO 4113

Combination No. : 0 402 796 208

Injection pump
Pump designation : PES6H120/720/3LS1018
EP type number : 0 412 726 214

Governor
Governor design. : RE33
Governor no. : 0 421 890 371

Cust. part No. : 51.11103-7591

Customer-spec. information
Customer : MAN
Motor : D 2876 LF 01
Power KW : 338.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 407.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 370.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0

Rated speed rpm : 500

Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 207.5
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

Rated speed rpm : 700
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.540
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.008
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : ± 10.0

Check tolerance
cm³/1000S. : ± 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.09.98
Test oil : ISO 4113

Combination No. : 0 402 796 038

Injection pump
Pump designation : PES6H120/320/3RS25
EP type number : 0 412 726 013

Governor
Governor design. : RE36
Governor no. : 0 421 890 373

Cust. part No. : 51.11103-7473

Customer-spec. information

Customer : MAN
Motor : D 0826 LOH 17
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

N24

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 800
Uact V : 2.510
Prestroke solenoid
Stroke mm : 13.20
Del. quantity
cm3/1000 strokes : 222.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1200
Uact V : 2.540
Prestroke solenoid
Stroke mm : 10.30
Del. quantity
cm3/1000 strokes : 209.0
Tolerance
cm3/1000 strokes : +/- 6.0
Check tolerance
cm3/1000S. : +/- 10.0

Rated speed rpm : 500
Uact V : 1.930
Prestroke solenoid
Stroke mm : 10.40
Del. quantity
cm3/1000 strokes : 146.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0

Rated speed rpm : 700
Prestroke solenoid
Stroke mm : 10.30
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : \pm 4.0
Check tolerance
cm3/1000S. : \pm 8.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.440
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.080
Prestroke solenoid
Stroke mm : 8.80
Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.100
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm3/1000 strokes : 104.0
Tolerance
cm3/1000 strokes : \pm 6.0

Check tolerance
cm3/1000S. : \pm 10.0

End of test specification sheet